

PROJECT ADMINISTRATION DATA SHEET

☒ ORIGINAL ☐ REVISION NO. _____Project No. E-15-505DATE 12/11/81Project Director: Dr. W. E. Sayle School/Lab Dean of EngineeringSponsor: NASA; Langley Research Center; Hampton, VA 23665Type Agreement: Contract No. NAS1-16845Award Period: From 9/30/81 To 9/29/82 (Performance) _____ (Reports) _____Sponsor Amount: \$65,000 - Fixed Price Contracted through: _____Cost Sharing: Approximately \$25,000 from SECME GTRI/STITitle: Summer Technological Institute

ADMINISTRATIVE DATA

OCA Contact Linda H. Bowman

1) Sponsor Technical Contact:

Ms. Janet M. McKenzieAffirmative Action Program ManagerMail Stop 178NASALangley Research CenterHampton, VA 23665804-827-3487Defense Priority Rating: none

2) Sponsor Admin/Contractual Matters:

Security Classification: none

RESTRICTIONS

See Attached N/A Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with N/A; Government Property Clause not incorporated.

COMMENTS:

COPIES TO:

Administrative Coordinator
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Procurement/EES Supply Services
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Reports Coordinator (OCA) ✓
Legal Services (OCA)
LibraryEES Public Relations (2)
Computer Input
Project File
Other _____

PROJECT ADMINISTRATION DATA SHEET

ORIGINAL



REVISION NO. _____

Project No. E-21-529DATE 1/4/82Project Director: Dr. W. E. SayleSchool/Institution EESponsor: NASA; Langley Research Center; Hampton, VA 23665Type Agreement: sub-project under E-15-505; Sangster letter dated 12/29/81Award Period: From 9/30/81 To 9/29/82 (Performance) _____ (Reports) _____Sponsor Amount: \$628.00 Contracted through: _____

Cost Sharing: _____ GTRI/ETX

Title: _____

ADMINISTRATIVE DATAOCA Contact Linda H. Bowman

1) Sponsor Technical Contact:

2) Sponsor Admin/Contractual Matters:

Ms. Madelyne WatsonCollege of EngineeringOffice of the DeanCampusx3353Defense Priority Rating: NoneSecurity Classification: NoneRESTRICTIONSSee Attached N/A Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval — Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with N/ACOMMENTS:Main project is E-15-505COPIES TO:Administrative Coordinator
Research Property Management
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Reports Coordinator (OCA) ✓
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Computer Input
Project File
Other _____

OCT 12 1982

GEORGIA INSTITUTE OF TECHNOLOGY

OFFICE OF CONTRACT ADMINISTRATION

SPONSORED PROJECT TERMINATION SHEET

Date 10/7/82

Project Title: Summer Technological Institute

Project No: E-15-505/E-21-529

Project Director: Dr. William Sayle

Sponsor: NASA

Effective Termination Date: 9/29/82

Clearance of Accounting Charges: _____

Grant/Contract Closeout Actions Remaining:

C.O.	_____
M&S	_____
EQUIP.	<u>\$2,003.78</u>
AX	_____
G.F.E.	_____
S. E	_____

E-15-505

- ☒ Final Invoice ~~and Closing Documents~~
- ☐ Final Fiscal Report
- ☐ Final Report of Inventions
- ☒ Govt. Property Inventory & Related Certificate
- ☐ Classified Material Certificate
- ☐ Other _____

Assigned to: Eng. Coll. (School/~~Laboratory~~)

COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services

Research Security Services
~~Reports Coordinator (OCA)~~
Legal Services (OCA)
Library

EES Public Relations (2)
Computer Input
Project File
Other _____

7 December 1981

NASA-Langley Research Center
Mail Stop 126
ATTN: C. L. Crowder
Hampton, VA 23665

Dear NASA-Langley:

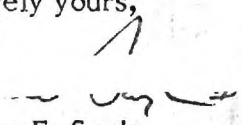
I am pleased to report on the progress of contract No. NAS1-16845 during the period 1 October to 31 December 1981.

During this first quarter, activity was directed primarily toward program planning and staffing of personnel for the 1982 SECME Summer Technological Institute. Meetings have been held with the Georgia Tech Office of Contract Administration, the Georgia Tech Engineering College, and with the SECME staff to plan various activities, procedures, and arrangements associated with the Summer Technological Institute. Georgia Tech faculty members who will participate in the instructional portions of the Institute were identified. They are Dr. Mark Christensen of the School of Mathematics, Dr. Maxine Turner of the Department of English and Dr. William E. Sayle of the School of Electrical Engineering.

The Summer Technological Institute will be held from Sunday 20 June through Thursday 1 July 1982 inclusive. A planning meeting for the Georgia Tech and teacher instructional staff will be held in mid-January. Hotel reservations have been made at the Howard Johnson's Midtown Hotel adjacent to the campus. This hotel was selected instead of the previously planned Comfort Inn because of better facilities and lower room rates.

No major problems have occurred in the planning of the 1982 Summer Technological Institute.

Sincerely yours,


William E. Sayle
Associate Professor of
Electrical Engineering
Principal Investigator

E-15-505



GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF ELECTRICAL ENGINEERING
ATLANTA, GEORGIA 30332

TELEPHONE: (404) 894-2946

15 March 1982

NASA-Langley Research Center
Mail Stop 126
ATTN: C. L. Crowder
Contract NAS1-16845
Hampton, VA 23665

Dear NASA-Langley:

I am pleased to report on the progress of contract No. NAS1-16845, Summer Technological Institute, during the period 1 January to 31 March 1982.

Activities during this second quarter focused primarily on the planning of the 1982 Summer Technological Institute. Participants in the Summer Institute will receive a minimum of fifteen hours of instruction and laboratory experience in microcomputers and fifteen hours of instruction in Discovery Learning. Dr. Ludwig Braun of the State University of New York at Stony Brook will be involved in the planning of the microcomputer component. He will be assisted by two experienced teachers and several graduate student assistants. Dr. Harold Finkelstein and Ms. Deborah Baldrige of Discovery Learning, Inc. will train several teachers in advance of the Summer Institute and lead the training of the SECME teachers at the Institute in the Discovery Learning method of instruction.

Text for a brochure announcing the Summer Technological Institute was prepared by Mr. Guy Vickers of SECME and Dr. William Sayle. This brochure will be produced and distributed by NASA-Langley.

Because of space limitations, the hotel for the Summer Institute has been changed from the Howard Johnson's Midtown Hotel previously reported to the Atlanta Biltmore. The Atlanta Biltmore is located at the corner of West Peachtree and Fifth Street, a few blocks from the Georgia Tech campus.

During the third quarter of the contract period, activity will continue to increase. This activity will culminate in the Summer Technological Institute, which will occur from 20 June to 1 July 1982.

No major insoluble problems have occurred to date.

Sincerely yours, _____

William E. Sayle
Associate Professor
Project Director



GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF ELECTRICAL ENGINEERING
ATLANTA, GEORGIA 30332

TELEPHONE: (404) 894-2901
894-2946

15 June 1982

NASA-Langley Research Center
Mail Stop 126
ATTN: C. L. Crowder
Contract NAS1-16845
Hampton, VA 23665

Dear NASA-Langley:

I am pleased to report on the progress of contract No. NAS1-16845, Summer Technological Institute, during the period 1 April 1982 to 30 June 1982.

During the current third quarter of the contract, activities focused upon the final planning of the Summer Institute and the actual conduct of the Summer Institute. The Summer Institute is scheduled to occur during the period 20 June through 1 July 1982. Arrangements have been made for guest speakers and lecturers for the various group meals and special portions of the program. The only major problems that have occurred during this reporting period have concerned the acquisition of a sufficient number of microcomputers for the participants. Neither Apple nor Radio Shack were willing to loan the twenty-five microcomputers each that were sought for the Summer Institute. Consequently, a very significant amount of time and effort have been expended to try to borrow a sufficient number of microcomputers for the eighty-eight participants. As of this writing, twenty-two microcomputers are expected to be available for the Summer Institute. Fortunately, Commodore was quite cooperative in arranging for the loan of their PET computer in sufficient numbers. The lack of cooperation by Radio Shack and Apple was disturbing.

Work to be performed during the fourth quarter of the contract period will be directed at the terminal phase of the Summer Institute and preparation of the Final Report.

Sincerely yours,

William E. Sayle
Associate Professor
Project Director

E-15-505



GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF ELECTRICAL ENGINEERING
ATLANTA, GEORGIA 30332

TELEPHONE: (404) 894-2946

2 July 1982

NASA-Langley Research Center
Mail Stop 126
ATTN: C. L. Crowder
Contract NAS1-16845
Hampton, VA 23665

Dear NASA-Langley:

This letter represents an "update" of the attached 15 June 1982 "version" of the progress report for contract No. NAS1-16845, Summer Technological Institute, for the period 1 April to 30 June 1982.

We received word on Friday afternoon, 18 June 1982, that our hotel, the Atlanta Biltmore, would be closing the next day for one and one-half years for remodeling. Our 92 participants were scheduled to arrive on Sunday afternoon, 20 June 1982. Arrangements were made for the participants to be housed at the Sheraton Atlanta through the night of 29 June 1982. They would then have to be moved to the Holiday Inn for the last night of the Institute. The project directors and engineering faculty coordinators would be housed at the Ramada Inn Central for their two and one-half days. The closing banquet would be held at the Ramada. While the Sheraton Atlanta was ideally located with respect to the Georgia Tech campus, the Ramada and the Holiday Inn were some five miles distant with no acceptable public transportation available. Transportation, needless to say, was a major problem. Fortunately, Mr. Guy Vickers, Assistant to the Director of SECME, was able to react with dedication and make a seemingly impossible situation workable.

In spite of the difficulties surrounding the problems created by the closing of the Atlanta Biltmore, the 1982 Summer Technological Institute was extremely successful in accomplishing its goal of training teachers. This success was owed to the resourcefulness of the SECME staff (specifically, Ms. Carolyn Chesnutt, Ms. Anne Wilson, Ms. Vicki Lovgren, Mr. Charles Einholz, Dr. Bill Shutz, and especially, Ms. Sandra Dix).

The forthcoming final report will detail the activities of the 1982 Summer Technological Institute.

Sincerely yours,

William E. Sayle
Professor and Project Director

THE 1982 SUMMER TECHNOLOGICAL INSTITUTE: A Final Report

The 1982 Summer Technological Institute was held on the campus of the Georgia Institute of Technology in Atlanta, GA during the period 20 June through 1 July 1982. Eighty-nine teachers and counselors from the southeastern United States spent twelve days

- (1) learning about microcomputers and how to implement them into the classroom,
- (2) experiencing the Discovery Learning teaching method and how to use it as a tool in the teaching of the engineering curriculum modules in the classroom, and
- (3) becoming aware of the engineering profession and the special career opportunities for minorities in engineering.

Forty-five SECME project directors (PDs) and engineering faculty coordinators (EFCs) were present during the last two and one-half days of the Institute. The PDs and EFCs met with each other and by themselves in small groups. Approximately forty representatives from industry, including SECME board members, were present for meetings during the last one and one-half days of the Institute.

This final report will discuss the three major goals of the Institute in the next three sections. The fourth section will discuss the mechanics of the Institute while the fifth section will present an evaluation of the Institute and its projected impact upon the achievement of the desired goals.

The 1982 Summer Technological Institute was sponsored by the Georgia Institute of Technology, NASA, and the Southeastern Consortium for Minorities in Engineering (SECME). Some additional support was provided by the Department of Energy through the PREP Program. Several companies provided speakers. Two companies, Corning Glass and IBM, allowed key engineers to help with the planning and execution of the Institute.

I. Microcomputers and Their Integration Into the Classroom

Each teacher received a minimum of fifteen hours of instruction and assistance in the use of the microcomputer at the 1982 Summer Technological Institute. Mr. Jack Teeter, a SECME teacher from Newton County, GA and Ms. Anita Turner, a SECME teacher from Mays Academy in Atlanta, were responsible for the microcomputer instruction. They were assisted by Dr. Ludwig Braun, a professor at State University of New York at Stony Brook, who served as a consultant.

Twenty-nine microcomputers (11 Apples, 8 TRS-80s, 10 PETs) were obtained for use by participants. Most of these microcomputers were brought to the Institute by participants who borrowed them from their SECME projects. Cooperation from the manufacturers, particularly Apple and Radio Shack was disappointing. Initial plans called for a minimum of 50 microcomputers with Apple and Radio Shack each loaning the Summer Institute 25 units. However, Apple and Radio Shack were only able to loan the Institute two computers each.

Participants were divided into four approximately equal groups. Those participants with little or no previous computer experience were grouped by discipline. The language arts teachers and counselors were placed in one group. The mathematics teachers with no previous experience were placed in another group. A third group consisted of science teachers with no previous experience. The experienced teachers were placed in a "mixed" mathematics-science group. The groups were color-coded and were referred to by their respective colors during the Institute.

During the second morning of the Institute, Dr. Braun gave a presentation on microcomputers and their role in education. This presentation was followed by a demonstration given by Mr. Teeter on the use of microcomputers in the secondary school classroom. Subsequent sessions featured hands-on use of the microcomputers in smaller groups ranging in sizes of on the order of 23 participants. The microcomputer groups met two at a time, with one group supervised by Mr. Teeter and the other group under the supervision of Ms. Turner. Ms. Turner and Mr. Teeter were each assisted by one high school student expert and one electrical engineering graduate student expert. Thus, the ratio of participants to computers was less than two participants per microcomputer during the supervised sessions.

In addition to the regular daytime sessions, the computer laboratories were open during several evenings and on each weekend afternoon to enable the participants to spend longer periods of time working on their programs. These extra sessions were very popular.

Each participant was given a disk on which they could write their own programs. This disk was theirs to take back to their school. Each participant was required to learn to write at least one simple program. Mr. Teeter and Ms. Turner prepared a catalog of programs suitable for the participants to take back with them to use in the classroom. In addition, Dr. Braun proposed the use of several thousand programs that were available to him that had not previously been evaluated and catalogued. The more experienced participants were offered the opportunity to evaluate some of these programs for their suitability in the classroom.

II. Discovery Learning and the Engineering Modules

Each participant received a minimum of fifteen hours of instruction and practice in the Discovery Learning method of teaching. The Discovery Learning method of directed dialogue involves every member of a class. It features a question and answer procedure that borders on the socratic method of instruction. Dr. Harold Finkelstein and Ms. Deborah Baldrige of Discovery Learning, Inc., conducted this portion of the Institute. They trained four peer teachers prior to the Institute who actually conducted the Discovery Learning sessions of the Institute. The four peer teachers were: Ms. Shirley Marshall of Smith High School (Atlanta), Ms. Jeanette Carter of Brown High School (Atlanta), Ms. Helen Carithers of Mays Academy (Atlanta), and Dr. Maxine Turner of Georgia Tech. Each peer teacher was responsible for a group of approximately 23 participants. Ms. Marshall worked with the science group, Ms. Carter with the mathematics group, Ms. Carithers with the combined math/science group, and Dr. Turner with the English/counselors group.

Dr. Finkelstein and Ms. Baldrige conducted a single combined session during the first afternoon of the Institute. Each of the four peer teachers made brief presentations concerning their experience with Discovery Learning during their training periods. The participants then separated into the four groups by discipline for the specialized training.

The Discovery Learning method was used to introduce participants to the modules available in their particular disciplines. These modules, which were prepared by the National Coordinating Center for Curriculum Development, have been used by SECME since 1977. Previous summer institutes have featured sessions where peer teachers discussed how they had used particular modules in their classrooms. This Institute departed from that procedure in its focus on a new teaching tool, Discovery Learning, which used the modules as the resource material.

The use of the Discovery Learning method of instruction at the 1982 Summer Technological Institute marked the first time that teachers had been trained in the method without the benefit of having their classroom students present. This proved to cause many of the participants to be skeptical of a method which is so radically different from the traditional lecture method of instruction. However, after an initial reluctance to experiment with this method, the participants showed remarkable adaptation and acceptance of Discovery Learning and its use as an instructional tool in the classroom.

III. Careers In Engineering

One of the major goals of the 1982 Summer Technological Institute was to explore engineering as a career and the special need for members of racial minorities to consider the opportunities available in the engineering profession. This goal was accomplished using several approaches.

All of the participants heard a series of discussions on the past and present efforts to increase the representation of minorities in the engineering profession and projections for the future. These discussions occurred during the first day of the Institute. All participants visited laboratories on the Georgia Tech Campus during the afternoon of the second Monday of the Institute. Most of the participants participated in a tour of the MARTA rapid rail central control facility on the Saturday morning of the Institute. All of the participants attended a presentation by Oak Ridge personnel on energy education and the use of microcomputers in the classroom.

Under the direction of Ms. Brenda Coffin, of Robertsville Junior High School in Oak Ridge, the counselors received special information on counseling procedures for students who have an aptitude for engineering careers. Procedures for identifying students and ensuring that they take the proper courses in mathematics, science, and language arts were emphasized. Ms. Coffin concentrated her efforts during the second week of the Institute. The counselors also received instruction in the use of SIGI, a computer program for counselors, from the Georgia Tech Counseling Center.

All participants received information regarding admission to engineering college and on financial aid and cooperative education programs available to prospective students.

Throughout the Institute, all participants heard from majority and minority engineers in lunchtime talks and panel discussions. A panel of minority engineering students conducted a discussion of what it is like to be an engineering student. A highlight of one of the luncheon meetings was an address by the Mayor of Atlanta, Andrew Young. Mayor Young described the experiences of his daughter, Lisa, who had just graduated from Howard University with a degree in Electrical Engineering.

IV. The Institute: Twelve Days of Education

The 1982 Summer Technological Institute began on Sunday 20 June and ended on Thursday 1 July 1982. The participants were to be housed in the Atlanta Biltmore Hotel for the entire twelve days. The Engineering Faculty Coordinators and Project Directors were also to be housed at the Biltmore. Careful negotiations with all of the area hotels had identified the Biltmore as the best all around value. Room rates of \$34 for a double room had been guaranteed for the participants.

It was learned in early June that the Atlanta Biltmore Hotel would be closing on 5 July 1982 in order to perform a major remodeling job. We would be the last major group to occupy this grand hotel that had served Atlanta since the 1920's. It was not to be. A newspaper article on the impending closing of the hotel inspired the many workers at the hotel to begin seeking other employment. The result of their successes in finding other employment left the hotel with an insufficient number of workers to run a first class operation.

The phone call came early in the afternoon on Friday 18 June -- less than 48 hours before the beginning of the 1982 Summer Institute. The Atlanta Biltmore hotel would close its doors the following day. There would be no Summer Institute participants staying at the Biltmore. Arrangements were made to accommodate the participants at the Sheraton Atlanta Hotel for the first ten nights. Because of a previous commitment to Lions International, the participants were moved to the Holiday Inn Northeast for the final night of the Institute. The Project Directors, Engineering Faculty Coordinators and the industry representatives would be accommodated at the Ramada Inn - Central. The Holiday Inn and the Ramada Inn were located near one another. However, both of these hotels were located some six miles northeast of the Georgia Tech Campus.

The shift in hotel accommodations had its blessings and it had its inconveniences. On the plus side, the Sheraton Atlanta Hotel was a much nicer hotel than the Atlanta Biltmore. It was also even more convenient to the meeting places on the Georgia Tech Campus than the Atlanta Biltmore. It was located directly across the street from the Varsity, a favorite place to eat for many of the participants and staff workers. Unfortunately, parking at the Sheraton was \$5.00 per day, an expense that the Institute budget simply could not handle. Instead, cars were parked overnight in a parking lot near the Georgia Tech Student Center and vans driven by Georgia Tech students were used to transport the participants from the hotel to their meetings and laboratories.

The placing of the Project Directors, Engineering Faculty Coordinators, and industry representatives at the Ramada Inn caused significant challenges in the transportation sector of the Institute. Vans were run as needed during the two and one-half days of the meetings of these individuals. The shift of the participants from the Sheraton to the Holiday Inn was accomplished by bus. The programs of the last morning were shifted to the Ramada in order to avoid having to transport everyone from the Ramada to the campus.

In order that the participants not arrive at the Atlanta Airport and request transportation to a closed hotel, the staff members called all of the participants on the Friday afternoon preceding the beginning of the Institute to inform them of the situation and the changes in plans.

Registration was accomplished on Sunday afternoon at the Sheraton. The participants then journeyed some six blocks to Mary Macs Tea Room for a welcoming hour and a buffet dinner of southern cooking. Many of the participants, suitably fortified, walked or drove the seven blocks to Piedmont Park where they heard the Atlanta Symphony in a free concert. Vans transported the participants back to the hotel after the Symphony in the Park.

Previous sections of this report have described the Discovery Learning, microcomputer, and career education components of the Summer Technological Institute.

The participants divided their meeting time between the Student Center and the Space Science Technology (SST) buildings. Breakfast and lunch meals were available to the participants through the use of meal tickets at the Student Center. Transportation was furnished via vans between the hotel and the campus each morning and afternoon.

The participants were given the opportunity to purchase tickets to the baseball game between the Atlanta Braves and the Los Angeles Dodgers on Wednesday night 23 June. This social event proved very popular, as Fernando Valenzuela pitched for the Dodgers. The Braves won the game. The Project Directors, Engineering Faculty Coordinators, and participants were given the opportunity to purchase tickets for the Braves game against the Houston Astros on Tuesday 20 June. The Braves also won that game.

The participants held a social on Monday night 28 June in the hotel. The party was sponsored by Corning Glass.

The closing banquet of the 1982 Summer Technological Institute was held at the Ramada Inn on Wednesday 30 June 1982. Dean William Sangster, College of Engineering, Georgia Institute of Technology, was the master of ceremonies. The banquet speaker was Myrna Hillyard, Principal of the Apache Indian elementary school at White River, Arizona. These two people, Dean Sangster and Ms. Hillyard, made what is usually a real high point of the Summer Institute into a spectacular and memorable evening.

The teacher of the year runner-up awards were given to Ms. Brenda Coffin of Robertsville Junior High in Oak Ridge, TN and to Ms. Gloria Suggs of Whitehaven High, Memphis Tennessee. The SECME Teacher of the Year Award was presented to Ms. Anita Turner of Mays Academy in Atlanta, GA.

V. An Evaluation

This section describes the procedures used for evaluation of the 1982 Summer Technological Institute and its projected impact upon the achievement of the desired goals.

Daily feedback from the institute participants helped the staff with the on-going planning of activities. The feedback surveys included planned activities of the day. Even though the details of the institute program had been worked out far in advance, there were occasions when adjustments in the program scheduling and logistics were made.

As a result of the first day's feedback we were able to determine the attitudes of the participants particularly in regard to lecture-type sessions. It was brought to our attention that the first day, which was filled with overviews, orientations and general introductory remarks became a bit too long and tiresome. With a close review of the first day, longer breaks for coffee and juice were instituted. These breaks gave the participants opportunities to review their notes, relax and exchange ideas following each session.

The daily feedback was also helpful in providing the staff with a more accurate accounting of the sophistication levels among the participants regarding computer literacy.

During pre-institute registration, the microcomputer sessions were organized by subject matter areas and levels of familiarity with the machines. Once the sessions were started and the classes had gotten under way, some participants discovered that they were in the wrong group. This was of course relayed to the peer teachers in charge of the sessions. But in some cases, the feedback surveys were more helpful in helping to identify some other related concerns.

In addition to the concerns expressed about daily progress in the micro-computer sessions, the participants were vocal in expressing their feelings with regard to the structure of the discovery learning sessions. This was helpful to the staff and peer teachers because it provided valuable input which was used in their daily planning and structuring of the laboratory sessions. In some cases, a restructuring of the homework assignments or the class procedures was sufficient. In some cases, the participants requested additional assistance with their class assignments and development of the required implementation plan.

The implementation plan, required of each participant, is an outline of the projected SECME program for the 1982-83 school year. The guidelines for the plan were explained at the initial meeting of the institute. The implementation plan was a requirement for all who attended whether they took the course for credit or not. To assist participants in developing their implementation plans, evening study sessions were conducted by Anne Wilson, Assistant to the Director of SECME and Audie Jordan, SECME coordinator for the Atlanta Public Schools. They gave the participants an opportunity to discuss their individual school situations, problems peculiar to their communities and school-related circumstances. These proved to be very beneficial sessions. These relaxed, after-hour sessions, were held in the reserved resource room of the Sheraton Hotel. The room also housed the curriculum materials, reference literature and electric typewriters for the participants' use.

Although the evening sessions were held primarily for study, they also served as an excellent source for gathering extra feedback which was used in evaluating the effectiveness of the institute in meeting its desired goals.

After close examination of the daily feedback surveys, oral comments of the participants, evaluations of class performance by the peer teachers and consultants, the following conclusions were drawn:

- 1) The summer institute participants increased their levels of computer literacy to the point that each was at least able to write a simple program. As a result of their ten day exposure to the microcomputer and its application for the secondary school classroom, each was able to identify areas in their curriculum where the microcomputer could serve as a useful tool for reinforcement. It has been particularly gratifying to see the number of implementation plans which indicate plans for using the microcomputer as an on-going learning tool for their

students. Several requests for microcomputer-related resources have come from the institute participants.

These requests are being met largely because of the computer programs that were developed during the institute and which have been made available for distribution among the SECME teachers.

2) The second goal of the institute was to present the Discovery Learning teaching method as a teaching tool. Each participant was given an opportunity to develop and present a lesson from an area of specialization which employed the Discovery Learning technique. The levels of acceptance of this teaching method varied widely. Each participant was able to find some application for Discovery Learning in the classroom. Some viewed it as excellent for enrichment and reinforcement. Some viewed it as an excellent method for review and others viewed it as an effective method for positive reinforcement in difficult teaching situations. By the end of the ten-day experience, the participants had gained a greater degree of comfort with this innovative approach to teaching and motivating student interest in engineering-related subject matter.

Since the institute, requests for Discovery Learning in-service have come in and teachers have been observed using the method in their classes.

3) The final goal of the institute was to provide the participants with a greater awareness of the engineering profession and the special career opportunities available for minorities in engineering. This goal was achieved through presentation from minority engineers, minority engineering students and information gathered and compiled by the National Action Council for Minorities in Engineering (NACME). All of the presentations made an impact on the participants. The response to the minority engineering students' panel was overwhelming. The response to the minority engineers also generated much interest and requests for more information regarding the educational materials, etc. which several of their companies produce.

The statistics which pointed out the severe need for engineers and specifically minority engineers were very eye-opening. This dire need made their responsibilities as secondary school pre-engineering teachers seem even more critical. This new awareness was expressed repeatedly in the daily feedback

surveys. Several participants suggested that the minority engineering students' panel be moved up in the institute schedule. Because the students were so candid and frank in their comments, they left the participants with a real challenge. They challenged the teachers and other school personnel to make demands for excellence in academic achievement of their students.

In summary, the goals of the 1982 Summer Technological Institute were met. The Institute was a success in every way.

APPENDIX

Some related news releases

About 26,850 likely to attend meetings

The Atlanta Convention and Visitors Bureau reports that during the week of June 21-27 an estimated 26,850 people will be in the Atlanta area attending 14 major meetings, conventions, trade shows and public shows. Here is a list of those meetings with estimated attendance:

- Georgia Sporting Goods Dealers Association, June 21-23, Big Canoe, 100.
- Million Dollar Round Table, June 21-24, Atlanta Hilton, 5,000.
- Bureau of Alcohol, Tobacco and Firearms, June 21-25, Perimeter North Inn, 60.
- Southeastern Consortium for Minorities in Engineering, 1982 SECME Summer Institute, June 21-July 1, Georgia Institute of Technology, 100.
- United States Office of Personnel Management, June 22-25, Atlanta American, 60.
- Bank Administration Institute, Trust Operations, June 22-25, Atlanta Marriott, 50.
- Barrentine, Lott, and Associates, June 23-24, Atlanta Marriott, 40.
- Citibank, N.A., June 23-25, Big Canoe, 40.
- Financial Service Corporation, June 23-26, Atlanta Marriott, 50.
- National Association of Truck Stop Operators, June 23-28, Hyatt Regency, 800.
- Breslin Enterprises, June 25-26, Big Canoe, 75.
- Equitable Life Assurance Society of the United States, Old Guard Meeting, June 25-28, Atlanta Hilton, 400.
- Lions International, June 27-July 3, Georgia World Congress Center, 20,000.

WHISTLE

NEWS FOR THE GEORGIA TECH COMMUNITY - VOLUME 8, NUMBER 22 - JULY 12, 1982



A Special Guest

Atlanta Mayor Andrew Young was well received recently as he addressed approximately 100 teachers of English, science and mathematics as well as counselors and administrators from junior highs and high schools from all over the Southeast in his second visit to the campus in two weeks. The group was on campus to participate in the Summer Technological Institute which was sponsored by the Southeastern Consortium for Minorities in Engineering Inc., SECME, and the College of Engineering.

Photo by Charles Harmon

SECME

Nonprofit Organization
U.S. POSTAGE
PAID
Atlanta, Ga.
Permit No. 3023

SPOTLIGHT

Southeastern Consortium for
Minorities in Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332
404/894-3314

Vol. 6, Summer Institute Edition, 1982

ADDRESS CORRECTION REQUESTED

Sixth Annual Institute Hailed Success

Eighty-nine secondary school teachers, counselors and administrators enthusiastically participated in the Sixth Annual Summer Technological Institute held on the campus of the **Georgia Institute of Technology**, June 20 through July 1. In spite of the closing of the Atlanta Biltmore Hotel, where participants were to be housed, on the day before the Institute began, the two-week program was hailed a success.

The mathematics, science, language arts teachers and counselors spent 15 hours in Discovery Learning laboratories practicing innovative learning techniques. An additional 15 hours spent in microcomputer laboratories gave the participants an opportunity to develop and sharpen their computer skills.

Other Institute activities included talking with minority engineers and minority engineering students, visiting engineering laboratories, and touring the portion of MARTA's rail system which is currently under construction and the central control facility. MARTA is the Metropolitan Atlanta Rapid Transit Authority.

Project directors from 32 school systems and nine engineering faculty coordinators attended a three day workshop to plan SECME School Programs for the 1982-83 year with participants from their schools.

Cooke Addresses Teachers

Dr. Lloyd Cooke, President of the **National Action Council for Minorities in Engineering, Inc. (NACME)**, addressed over one hundred teachers, counselors, administrators and industry representatives during an Institute luncheon.

Dr. Cooke's comments were stimulating and thought provoking. Cooke stated that "with federal budget cuts in the areas of math and science, it is significant and vital that groups such as SECME exist with the support of industry". Cooke further stated that "in only six years, SECME has established a pattern, consortium, and collaboration that is a model for the nation".

Dr. Cooke commented on the high attrition rate of minority students enrolled in engineering colleges. He stated that NACME funds have been committed to analyze the problem. Cooke further mentioned that preliminary data clearly shows that ethnic group centers, student society chapters and study groups are contributing factors in student retention on engineering campuses.

Cooke stated that "after teachers have been exposed to SECME and trained at an Institute, it is essential that teachers get support to implement projects in their respective schools. He noted that SECME was a unique program in that Engineering Faculty Coordinators work closely with SECME Project Directors and teachers to provide technical assistance in program development.

Dr. Cooke concluded his comments by stating that SECME Summer Institutes provide a forum for teachers to learn innovative and creative teaching techniques.

SECME Teachers Lead Sessions

William E. Sayle, Professor of Electrical Engineering at Georgia Tech served as director of the Summer Institute with the assistance of Audie Jordan, SECME Facilitator for the Atlanta Public Schools.

Dr. Harold Finkelstein and Deborah Baldrige, directed the Discovery Learning sessions of the Institute with the assistance of several SECME teachers.

The math and science curriculum groups were led by Shirley Marshall, Jeanette Carter and Helen Carithers. Leading the language arts and counselors groups were Maxine Turner and Brenda Coffin.

Dr. Ludwig Braun, professor and director of the Laboratory for Personal Computers in Education at the State University of New York at Stony Brook, served as consultant for the microcomputer component of the Institute. SECME teachers Jack Teeter and Anita Turner led the computer sessions.

These lead teachers were from Smith High, Brown High, and Mays High, Atlanta, Georgia; Robertsville Jr. High, Oak Ridge, Tennessee; and Newton County High, Covington, Georgia. Dr. Turner is an Associate Professor and technical writing specialist at Georgia Tech. The obvious value of the sessions and the outstanding job performed by the leaders helped make the Institute a success.

SECME Alumni Participate in Panel

During the Summer Institute two SECME alumni participated in a minority engineering student panel. Christopher Cleveland, a sophomore at Purdue University is an aerospace engineering major, a former 1980 (MS) scholar and a 1981 graduate of Frederick Douglass High School in Atlanta, Georgia. Buford Mobley, a sophomore at Clemson University majoring in Chemical Engineering, is a 1981 graduate of Spartanburg High School, Spartanburg, North Carolina. Mobley is also a Corning Glass Works CORBEST scholar.

Seven engineering students from the Georgia Institute of Technology also participated on the panel. They were: Sandra DeVoe, junior, ChE; John Gray, junior, EE; Wayne Reeves, senior, ME; Stan White, junior, ISYE; and Keven Tolliver, graduate, CE.

As indicated from the teacher evaluations, the student panel was an Institute highlight.

The engineering students gave the participants background information relative to their educational experiences and suggested strategies to better prepare high school students interested in pursuing an engineering degree. They also challenged the teachers to encourage more capable minority students to pursue careers in engineering. In their comments, they also urged that teachers set realistic goals for their students and closely assess their potential and capabilities.

This enthusiastic panel was moderated by Guy Vickers of SECME-Atlanta.

Industry/University Reps Visit Institute

Thirty persons attended the Advisory Council/University Council sessions held during the last two days of the Institute. Participants heard an overview of the Institute given by Jeanette Carter, Discovery Learning Instructor and mathematics teacher at Brown High School in Atlanta; Jack Teeter, computer instructor and science teacher from Newton County, Georgia; and Brenda Coffin, Counselor from Robertsville Jr. High School, Oak Ridge, Tennessee. Former SECME student, Buford Mobley, spoke about the influence of his SECME teachers at Spartanburg High School, SC in selecting the study of engineering. Mr. Mobley is a sophomore at Clemson University studying Chemical Engineering. He works in the summer with Corning Glass Works in Wilmington, N.C.

During the business session check presentations were made by representatives of the Allied Corporation, Martin Marietta, International Paper and Union Carbide. Allied is a new contributor to SECME.

Engineering College: How to Get In and Survive

One of the most informative sessions presented at the Institute was a panel discussion about engineering admissions. Representatives from Georgia Tech and the Atlanta University Center's Dual Degree Program informed the participants that teachers play an important role in career decisions of students. They also stated that teachers and counselors can better assist potential minority engineering students by being prepared to answer questions about enrolling in college.

Following the presentation, the panelists responded to questions. They also met in a separate session with the counselors group. The Georgia Tech panelists were: Robert James and Thomas Akins, Cooperative Education; Jerry Hitt and Deborah Harris, Admissions; and Curly Williams, Financial Aid. The AUC panelist was William Shackelford. Carolyn C. Cannon, Director of Special Programs, Georgia Tech moderated the panel.

Teachers Become Micro Manipulators

If the verbal and written comments are to be believed, the microcomputer section of the Summer Institute was a very high point, indeed. Through the generosity of the Georgia Tech math department, the Apple regional staff, a local Radio Shack dealer, the Commodore corporate people, and above all, the teachers who in some cases, brought Apples and TRS-80's to the meeting, enough Apple II's, TRS-80's and PET's were obtained to populate the computer labs.

The outstanding leadership of Anita Turner and Jack Teeter, together with skilled backup from the two young high school Scotts — Scott Newton and Scott Stinson, was what was needed to start a whole new generation of SECME computer whizzes on the right track. In addition, participants with previous experiences gained additional skills.

The Software Library got a good start with the aid of some diskettes brought by attendees, and further help is on the way — see article headed "Software Library". SECME is looking forward to even better things for next year's Institute.

Minority Engineers Serve on Panel

An Institute highlight featured minority engineers from industry and representatives from local organizations. The minority engineers gave a brief overview of their educational backgrounds and current work assignments. They also discussed the role teachers play in the classroom and stressed the importance of teachers preparing students in the "basics" of math, science and language arts. The minority engineers were Kenneth R. Saunders, Williams, Russell & Johnson, Inc. and SECME Board Member; Wesley Brown, E. I. DuPont; C. L. Guillory, South Central Bell; Verlyn Lowery, Procter & Gamble; Gail March, Rockwell International; David Nickens, Westinghouse; Michael R. Pack, Williams, Russell & Johnson, Inc.; Frank Preston, General Motors; and Judy Smith, Southern Bell.

Committee representatives from the Atlanta SECME Committee and the Region "O" Council for the Advancement of Minorities in Engineering (ROCAME) emphasized the importance of having industry involvement at the local level. They encouraged the participants to organize local SECME committees to supplement their efforts. It was suggested that key representatives from local school systems, university, parent groups and industry/business meet to establish common goals for the SECME Program. The representatives were: D. Karl Paul, Hewlett-Packard and Vice Chair, Atlanta SECME Committee; Willie Walls, Assistant Superintendent, Columbus County Schools; Diane Avery, New Hanover County Schools; and Byard Houck, EFC, North Carolina State University.

Banquet Speaker, Myrna Hillyard: Just What the Doctor Ordered

The keynote speaker for the Teacher of the Year Banquet was Myrna Hillyard, Principal, Whiteriver Elementary School, (Apache Indian Reservation), Whiteriver, Arizona.

Ms. Hillyard shared many personal experiences from her rich background as a teacher, principal, and consultant for students from Hispanic and Indian backgrounds. She spoke of the need for a greater sense of commitment on the part of teachers. With much humor and sincerity, she spoke of professional fatigue and "burn out" which many people in the helping profession are beginning to experience.

She spoke of the need for teachers to help disadvantaged students to like themselves; to help them identify with success and to give them role models with whom they can identify.

Ms. Hillyard reminded the teachers of the professional rewards which come from seeing young minds develop into productive citizens. She captured the attention and imagination of the audience by relating accounts of her experiences which had produced success stories from children of disadvantaged backgrounds.

Following Ms. Hillyard's address, the audience gave her a standing ovation. The sentiment of the audience was warmly expressed by Dr. William M. Sangster, Dean, College of Engineering, Georgia Tech, who served as toastmaster for the occasion. He responded by saying that Mrs. Hillyard's speech was a real shot in the arm for educators everywhere.



Turner Named Teacher Of The Year

Anita Turner was selected as the 1982 SECME Teacher of the Year winner. Ms. Turner, a mathematics and computer science teacher at **Mays Academy**, Atlanta, Georgia, also served as an instructor at the Summer Technological Institute. Ms. Turner's Engineering Faculty Coordinator is Dr. Bill Sayle, Georgia Tech.

Carolyn C. Chesnutt, Executive Director of SECME, presented Ms. Turner with a plaque commemorating her selection as Teacher of the Year and a trophy to be displayed in the Benjamin E. Mays Academy for one year.

The Co-runner ups were Gloria Suggs, a chemistry and physics teacher at **Whitehaven High**, Memphis, Tennessee; and Brenda Coffin, a guidance counselor from **Robertsville Jr. High**, Oak Ridge, Tennessee. Both runners up also received plaques. Their Engineering Faculty Coordinators are Roger Nolte, **Memphis State University** and Dr. Jack Forrester, **University of Tennessee**.

The teachers were judged on initiative in program development; promotion of parent/industry/education involvement; creativity; use of role models and field trips; and motivation of students. Turner was chosen Teacher of the Year by a three judge panel of SECME Board members. The judges were: Mr. H. Don Harbuck, **Georgia Power Company**; Ms. Joann Heddeston, **Alcoa**; and Mr. Ben Morall, Jr. **Martin Marietta**.



IBM Executive Loaned to SECME

Charles Einolf comes to SECME from **International Business Machines** on a one year assignment through the IBM Faculty Loan Program, a program to provide teaching and related talents to minority schools and organizations. More than 40 IBM engineers are in such assignments for the 1982-83 school year.

One of Mr. Einolf's primary functions while at SECME will be the planning, development and implementation of a software library. This will entail writing proposals for equipment and assistance from the major microcomputer manufacturers. In addition, he will devote part-time to serving as an adjunct Engineering Faculty Coordinator.

Mr. Einolf has a Bachelor of Science in Electrical Engineering from Johns Hopkin's University, and has had assignments at home and abroad in every phase of computer design, development, manufacture and testing.

Mr. Einolf is a Senior member of the IEEE.

SECME to Develop Software Library

An effort is underway to gather copies of all software available in the SECME schools for a kind of "software swap". If you have programs on diskette or on tapes, please let us know what you have, and what machine it is written for (Apple II, TRS-80, etc.). Do not send programs at this time. The following information is requested:

- 1) Name of program
- 2) Machine written for
- 3) Grade level
- 4) Usefulness
- 5) Can it be copied (legally)?

Copies will be available from the SECME office. For more information contact the SECME office.

SECME Film Library

The following films are available from SECME on a loan basis.

Technology - Handle With Care
Building the Golden Gate Bridge
Steel Spans the Chesapeake
A World of Energy
It's Your Turn - To Communicate
It's Your Turn - To Steer
It's Your Turn
Nothing But Common Sense
Women's Work - Engineering
Careers in Engineering
A Certain Tuesday
The Invisible E

1982 SECME Contributors

Alabama Power
Alcoa Foundation
Allied Corporation
Amoco Foundation
Continental Forest Industries
Corning Glass Foundation
E. I. DuPont
Eastman Chemical Division
Ebasco Services
Exxon USA Company
Fluor Foundation
Ford Motor Company
Georgia Power Company
Hewlett - Packard
IBM
International Paper Company Foundation
Martin Marietta
Motorola
NASA
Olin Foundation
Procter & Gamble
Scientific-Atlanta
Siemens-Allis
South Central Bell
Southern Bell - Georgia
Southern Railway
Union Camp
Union Carbide
Westinghouse Foundation

Southern Bell Produces SECME Film

Southern Bell provided technical assistance to SECME in the production of a film entitled "Training Teachers the SECME Way". The ten minute tape illustrates the need for minority engineering pre-college programs, SECME's philosophy of teacher training, and shows scenes from the 1981 SECME Summer Institute.

Carolyn C. Chesnutt, Executive Director, SECME had the opportunity to present the film to approximately seventy-five chief executive officers or their representatives who attended the **National Action Council for Minorities in Engineering (NACME)** Annual Forum in Dallas, Texas. The tape generated considerable interest and was very positively received.

During the 1982 Summer Institute the tape was presented to school system administrators, guests and SECME's industrial advisory council.



Atlanta Mayor Andrew Young: A Real SECME Fan

Atlanta Mayor, Andrew Young was the featured speaker at the June 29 luncheon during the Summer Institute.

He commended the teachers, university representatives and industry representatives on their unique accomplishments through SECME. He quoted figures which supported the national need for more minorities in the technical careers. SECME, he stated, was not only helping to meet the need, but was also bringing together the worlds of academia and industry.

He gave personal testimony as to the significant role that well-trained teachers had played in the life of his children, one of whom is a successful electrical engineer. He then introduced his engineer daughter's former math and science teachers among the Institute participants.

Mayor Young closed by offering a challenge to the group. He challenged all SECME supporters (industry, universities, community groups, school personnel, etc.) to continue in the effort and not to lose sight of the fact that they had a moral responsibility to American youth and the future of this country.

"Training Teachers the SECME Way" will be used for in-service training and fund-raising. SECME has received glowing accolades on the quality of the production and a number of requests to borrow the tape for school and university programs throughout the southeast.

The Executive Producer of the tape was Carolyn C. Chesnutt. John Noell and Tom Ingle of Southern Bell produced and directed the filming of the tape. The script was written by John Noell and Ann Wilson, SECME. Rob Cleveland, a local Atlanta talent, served as narrator.